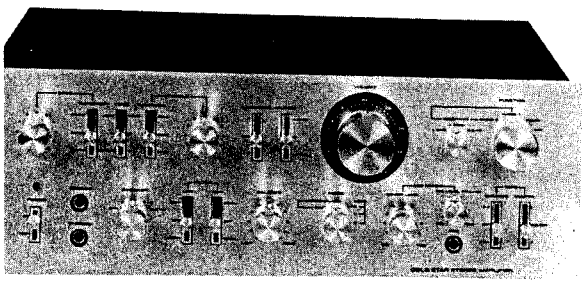
SV2-025B

Gold Star Audio

SERVICE MANUAL

for

service technician



Gold Star Co., Ltd.

STEREO AMPLIFIER

GSA-8500

GSA-8600

SPECIFICATIONS

This is a specification for Model GSA-8500 and is like to Model GSA-8600, Notice that Model GSA-8600 does not have functions, which are MIC MIXING, TURN OVER SW of BASS and TREBLE, PHONO SENSITIVITY Selection.

GENERAL

Semiconductor : 51 TR, 24 DIODE and VARISTOR.
Power Supply : See the back panel of unit
Power consumption : 450 watts (MAX)
Dimensions : 420(W) x 148(H) x 335(D) m/m
Weight : 12.5Kg

MAIN AMP SECTION

Continuous RMS POWER output (1000 Hz) 45W+45W (8 ohm Load)
Harmonic distortion (1000Hz) 0.06%
Intermodulation distortion 0.08%
(70Hz: 7000Hz =4:1)
Power bandwidth (1HF) 20-30000Hz
Frequency response (at 1W output) . . 10-35000Hz
Outputs speaker (A, B) . . . . . 4-16 ohm
Damping factor (8 ohm) 30
HUM & NOISE (IHF A SHORT CIRCUIT)
PHONO 50dB
TUNER, AUX, TAPE MONITOR 70dB

PRE AMP SECTION

NPUT SENSITIVITY & IMPEDANCE
PHONO . . . . . 1.2, 2.4, 4.8mV/50k ohm
TUNER, AUX, TAPE MONITOR . . . . 150mV/50k ohm

OUTPUT
TAPE REC 100mV
PRE OUT 700mV
MAXIMUM INPUT CAPABILITY
PHONO 200mV
BASS (±10dB) · · · · 100Hz (TURN OVER 400Hz position)
50Hz (TURN OVER 200Hz position)
25Hz (TURN OVER 100Hz position)
TREBLE (±10dB) · · · 8KHz (TURN OVER 2KHz position)
16KHz (TURN OVER 4KHz position)
32KHz (TURN OVER 8KHz position)
LOUDNESS
1 (+8dB/+6dB) position 50Hz/20KHz
2 (+8dB/0.5dB) position 50Hz/20KHz
LOW FILTER
20Hz Position . . . . . (-6dB)
100Hz Position . . . . . (-6dB)
HIGH FILTER
20kHz Position . . . . . (-6dB)
10kHz Position . . . . . (-6dB)

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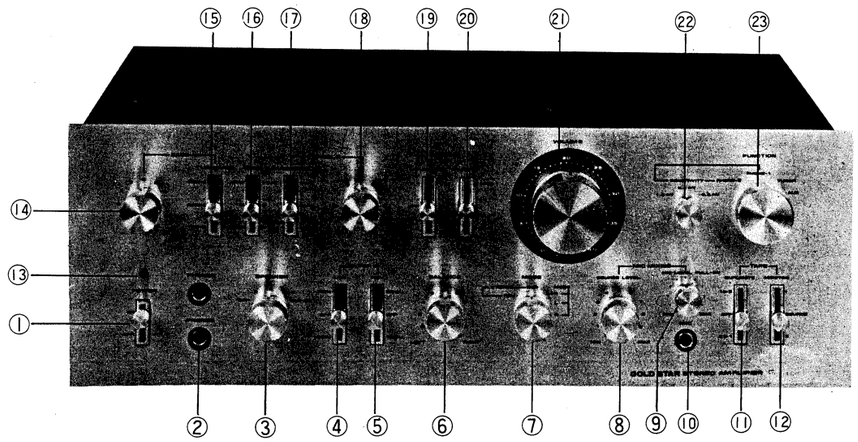
CONTROLS

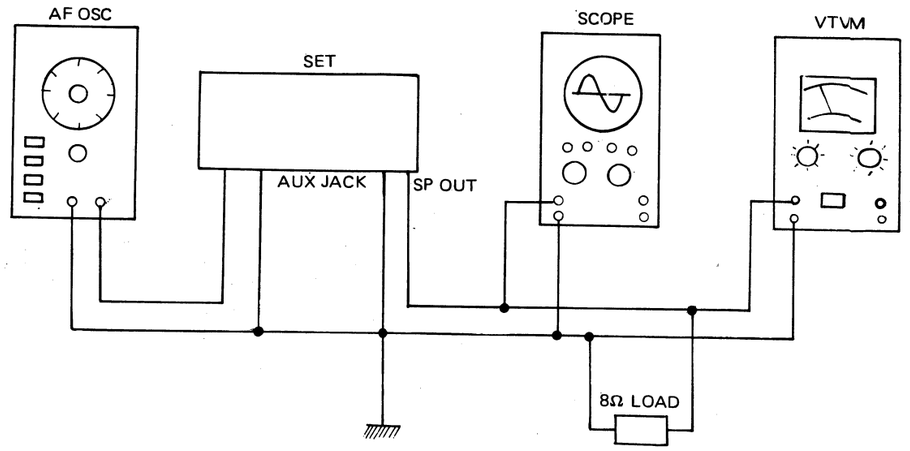


1) Power switch
2) Headphone jack
3) Speaker selector
4) Low filter
5) High filter
6) Balance control
7) Mode selector
8) Source level control (only model GSA-8500)
9) Mic Level control (only model GSA-8500)
10) Mic jack
11) Tape dulipcate switch (only model GSA-8500)
12) Tape monitor switch
13) Power lamp
14) Bass control
15) Bass turnover switch (only model GSA-8500)
16) Tone selector
17) Treble turnover switch (only model GSA-8500)
18) Treble control
19) Loudness switch
20) Muting switch
21) Volume control
22) Phono sensitivity selector (only model GSA-8500)
23) Function selector

IDLE CURRENT ADJUSTMENT

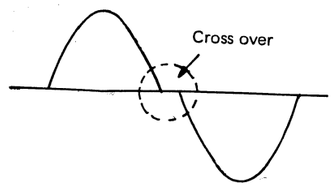
This set has been equipped electronic protection circuit that consists of high speed switching transistors and relay.
The protection circuit keeps breakage of power transistor or speaker which may happen from incomplete connection, overcurrent or overload.
Therefore, after checking the relay operation, proceed alignment only when relay is in normal condition.
If the operation of relay is abnormal, you can not adjust the set correctly.

TEST CONNECTION



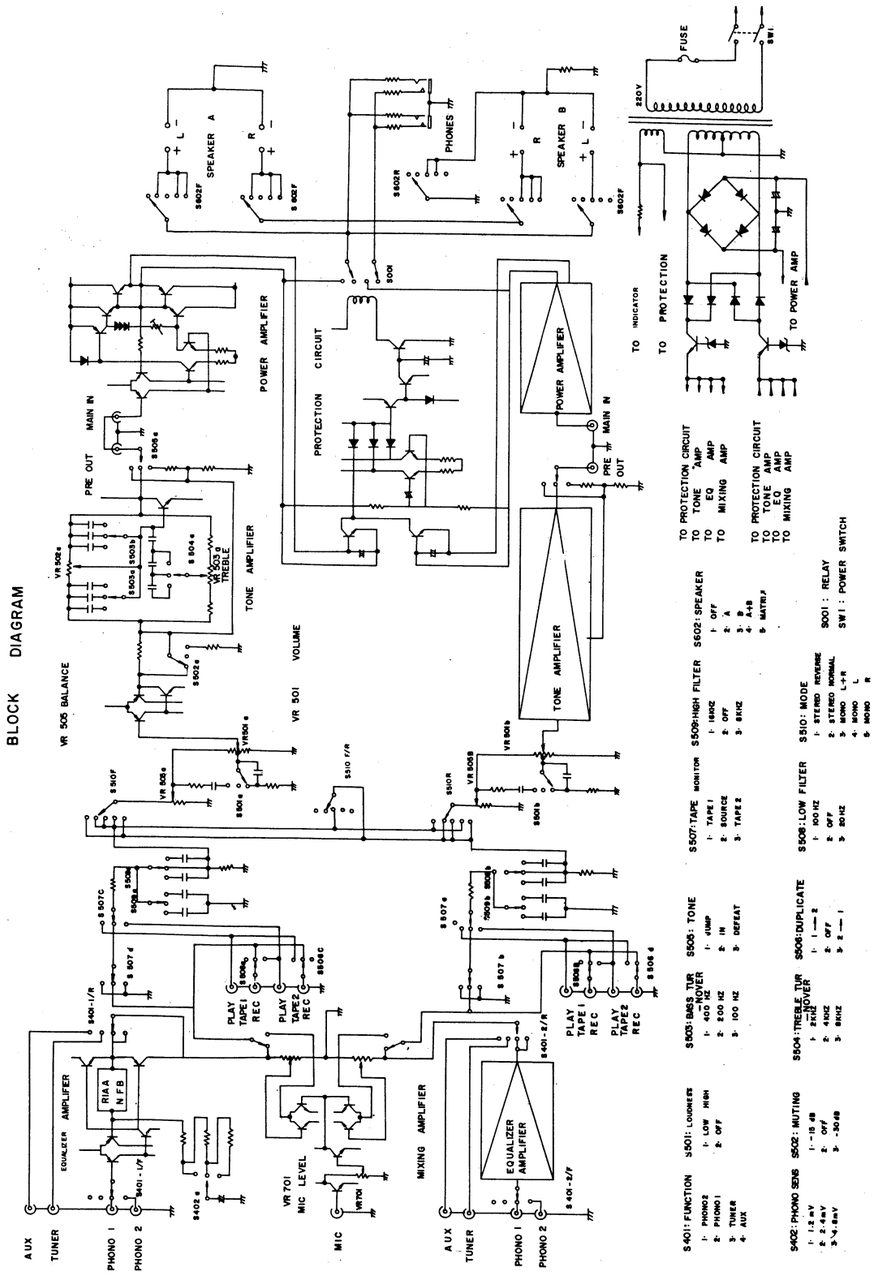
PROCESS OF ADJUSTMENT

The adjustment has been done at the factory and normally will not require further.
As a result, it is not recommended that any attempt is made to modificate any circuit.
If any parts are replaced or if anyone tampers with the adjustment, readjustment may be necessary.
1. Preset Bass, Treble and Balance controls to mid position.
2. Rotate VR601 and VR602 clockwise about two-thirds.
3. Control the output level of AF OSC or volume of the set to get about 0.5W on VTVM.
4. VR601 (VR602) shall be readjusted cross over to disappear on scope.
5. If you rotate to clockwise it maximum, it may be breakdown power transistor. Therefore, be careful VR601 (VR602) adjustment.

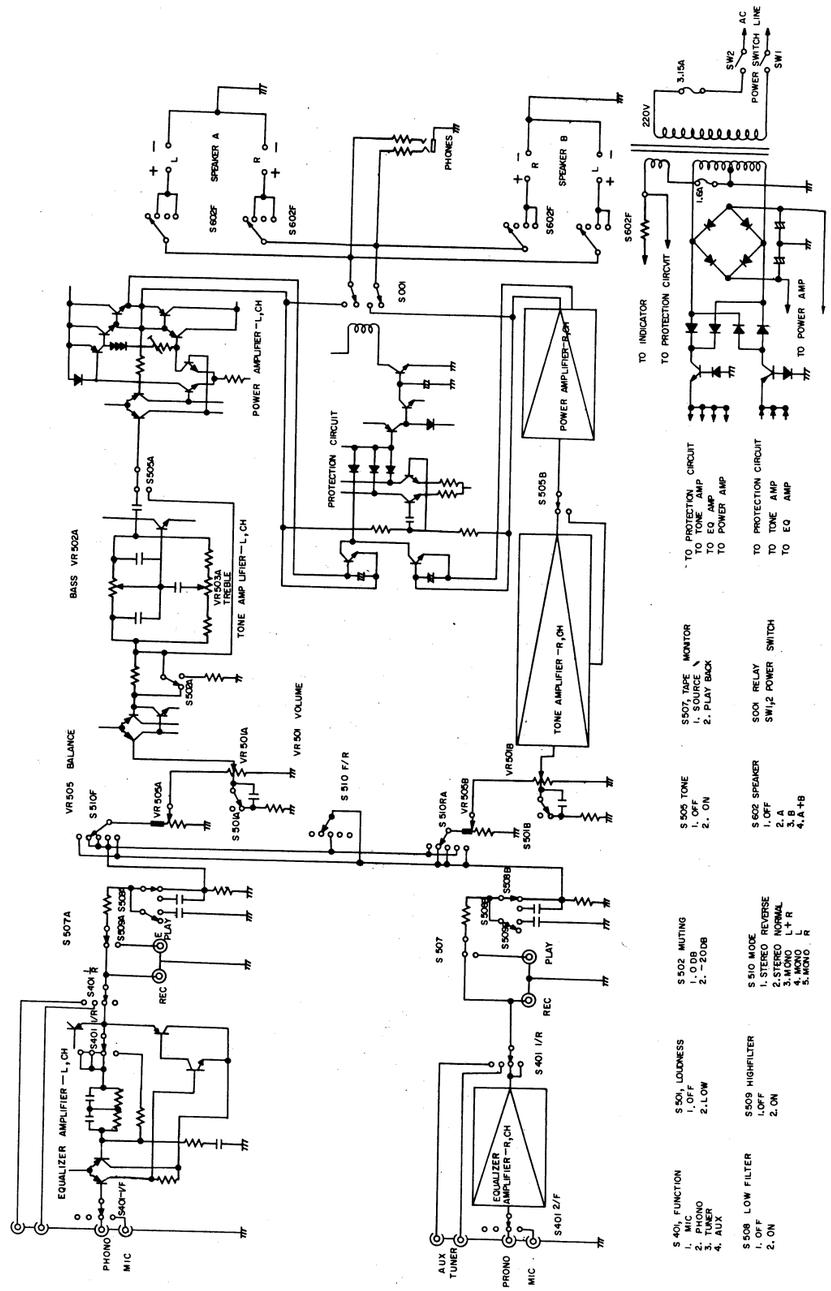


BLOCK DIAGRAM (MODEL GSA-8500)

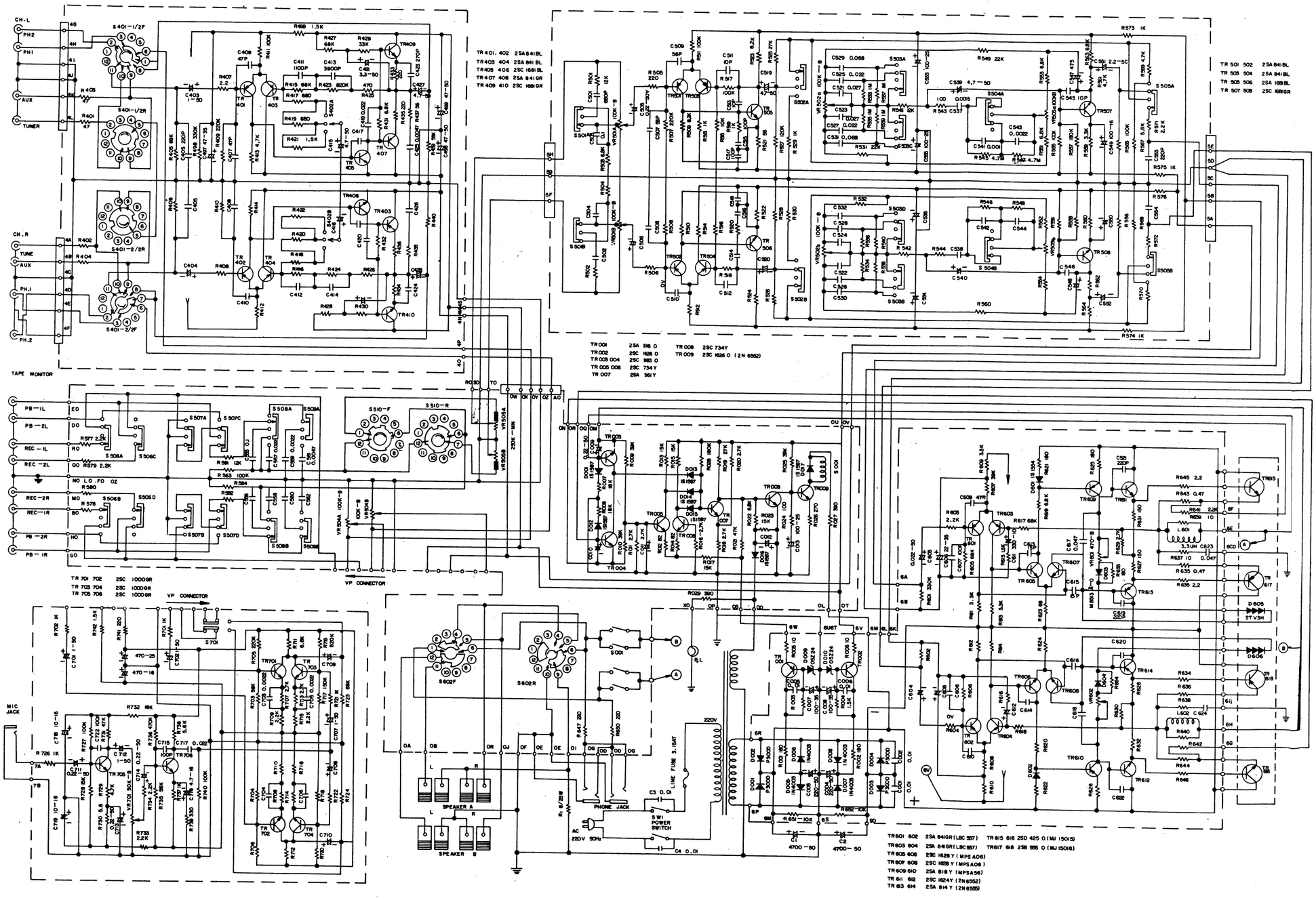
BLOCK DIAGRAM



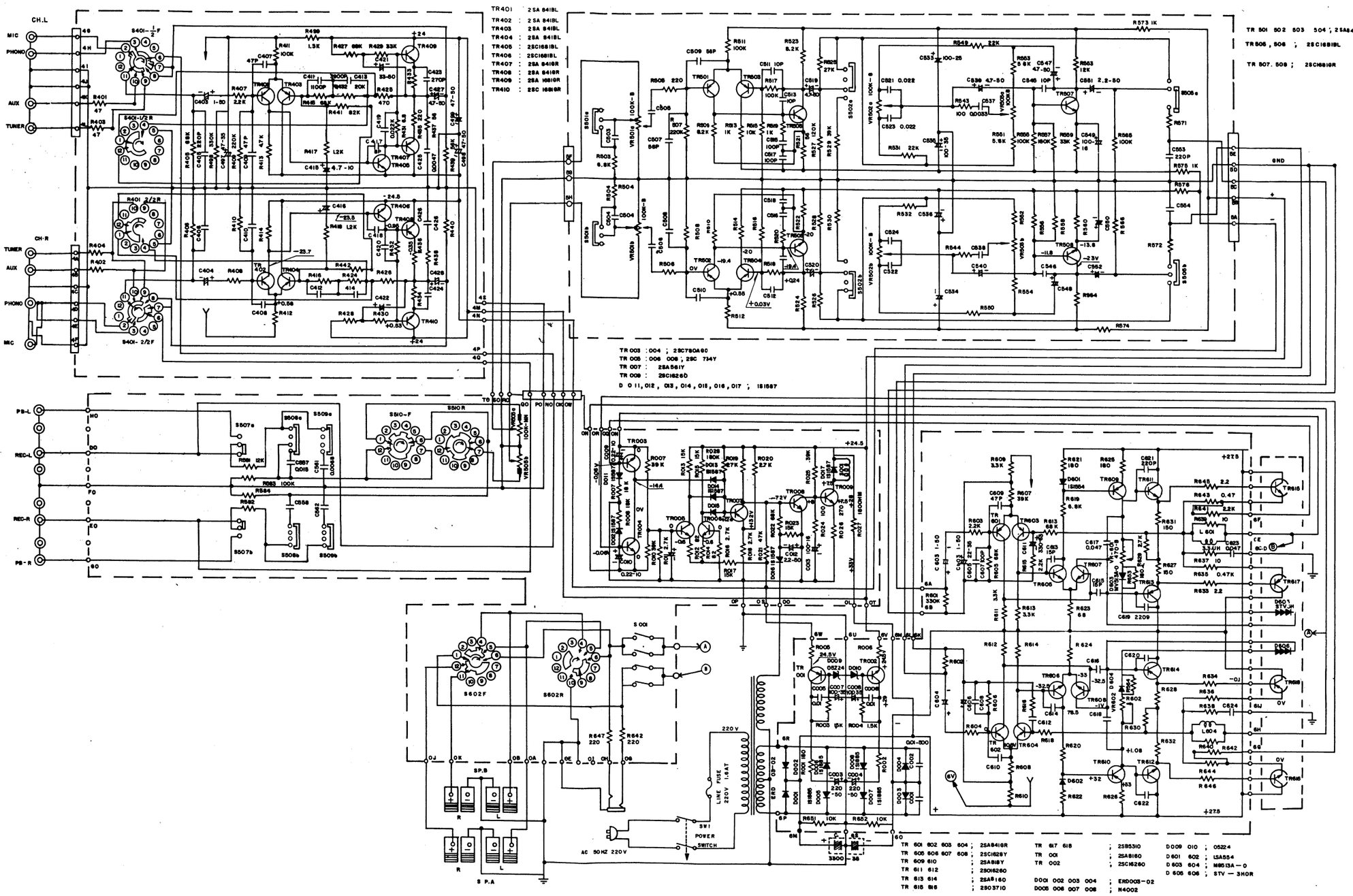
BLOCK DIAGRAM (MODEL GSA-8600)



SCHEMATIC DIAGRAM (MODEL GSA-8500)



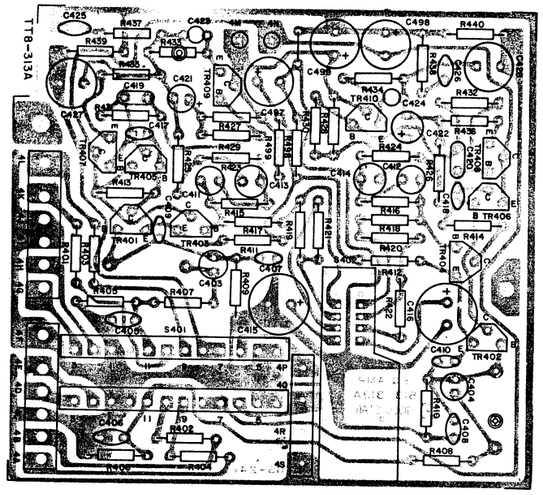
SCHEMATIC DIAGRAM (MODEL GSA-8600)



ELECTRICAL PARTS LOCATION

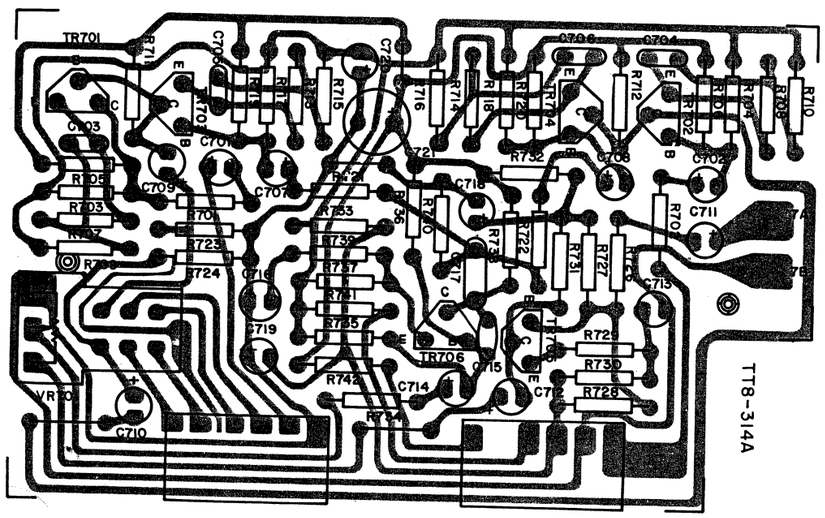
PWB AY EQ (511-307A)

MODEL GSA-8500



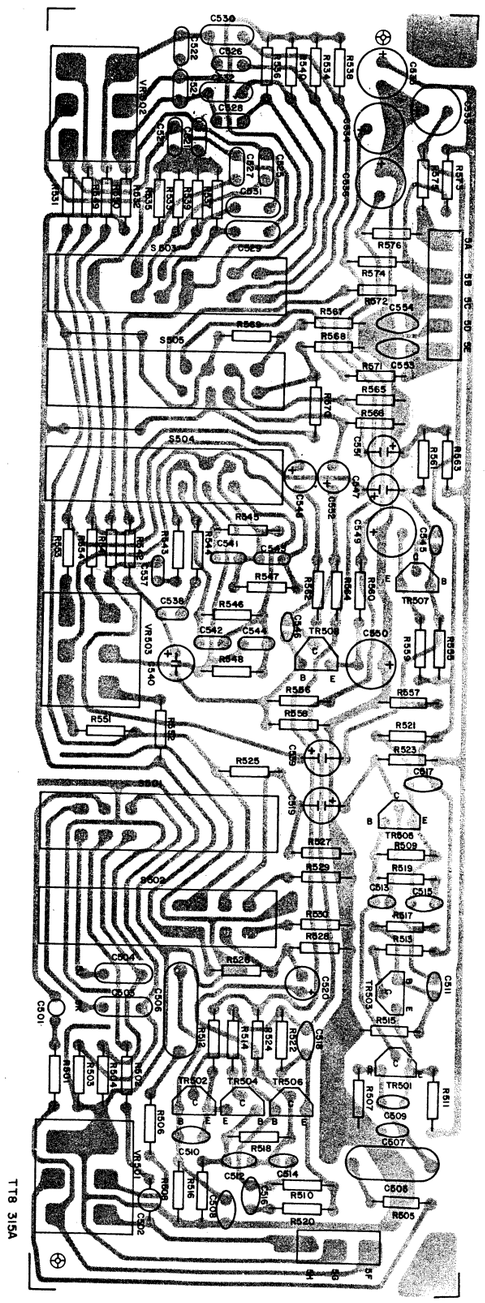
PWB AY MIXING (511-308A)

MODEL GSA-8500



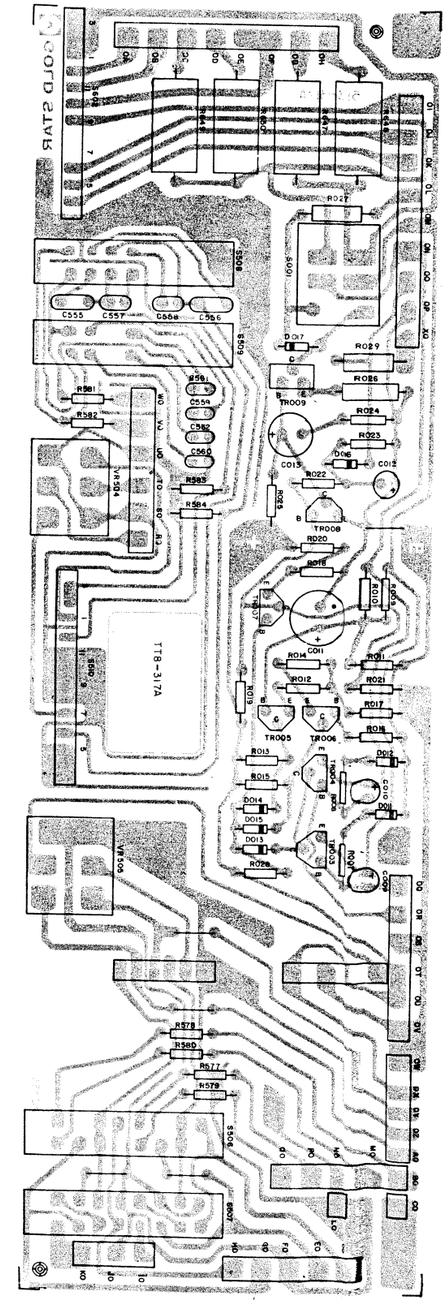
PWB AY TONE (511-309B)

MODEL GSA-8500



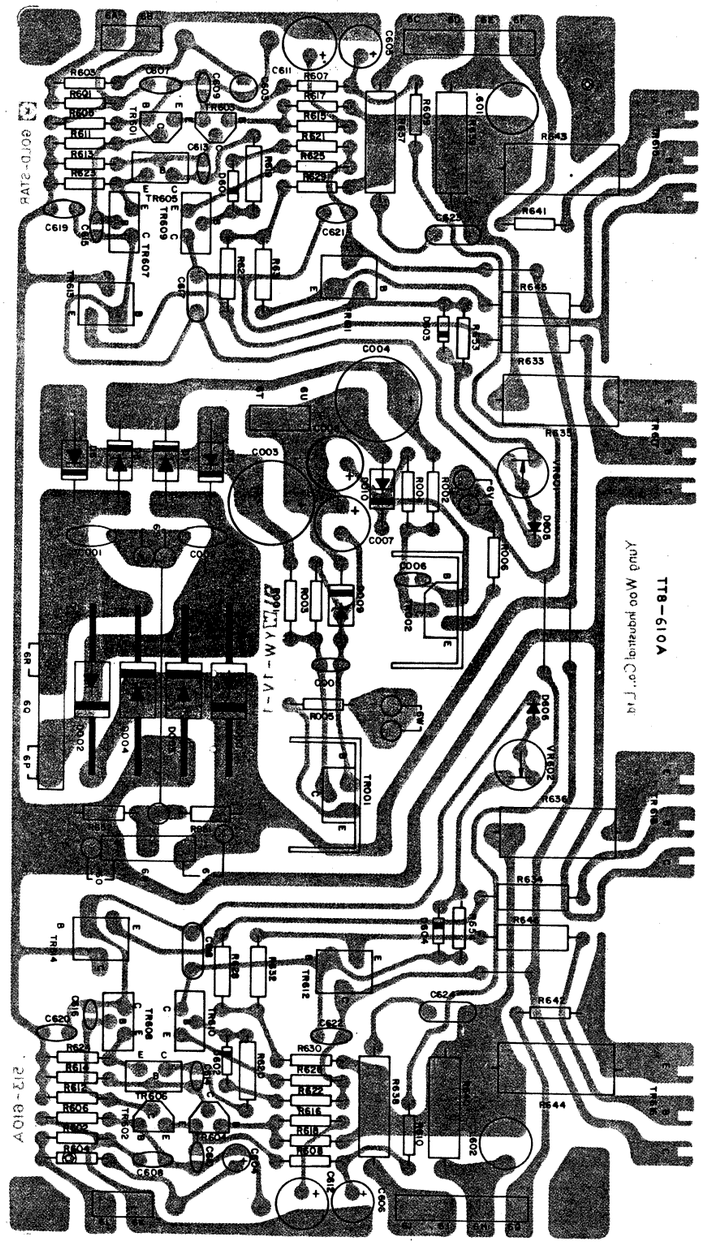
PWB AY PROTECTION (511-311A)

MODEL GSA-8500



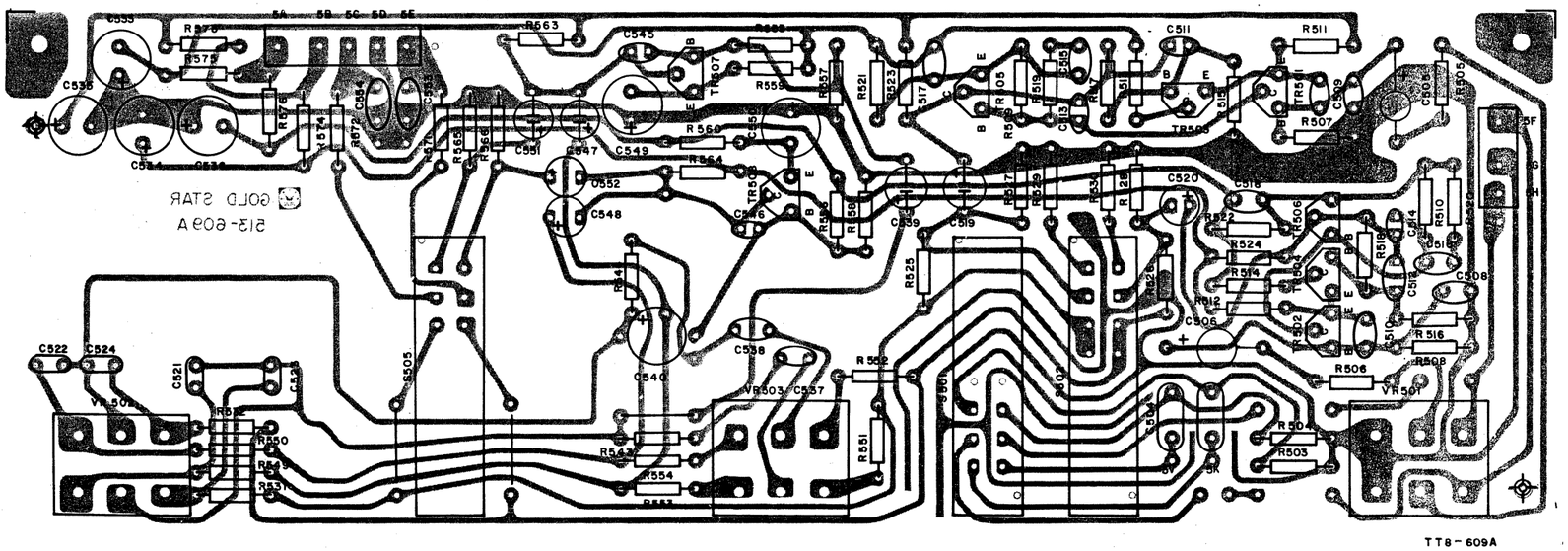
PWB AY POWER (511-310A)

MODEL GSA-8500/GSA-8600



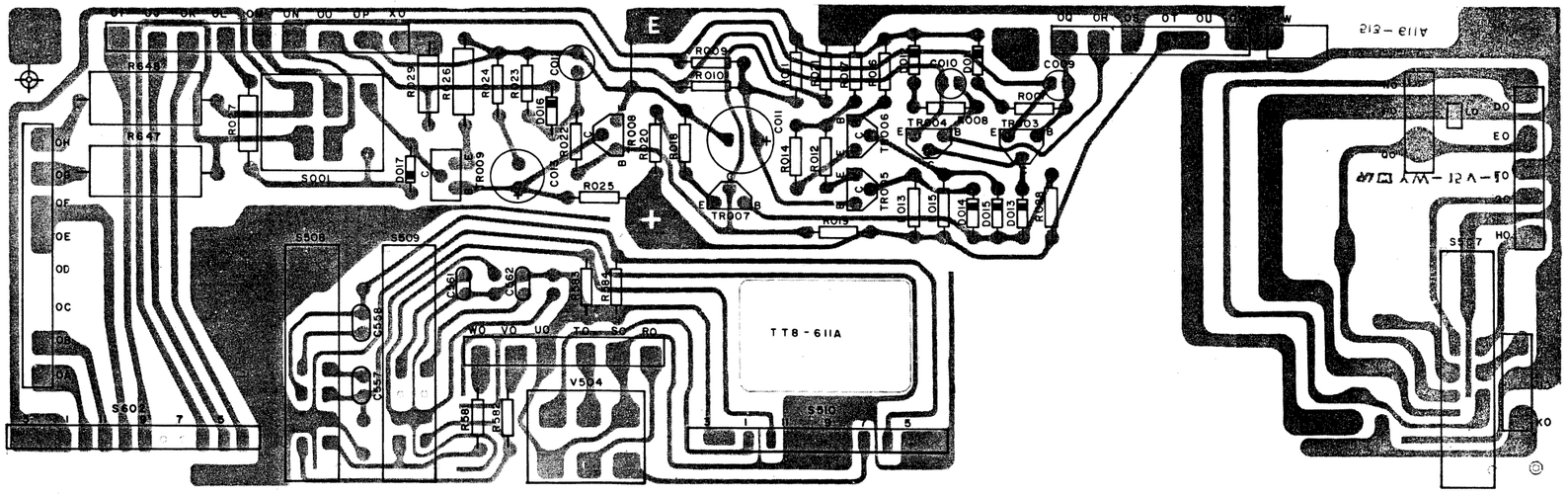
PWB AY TONE (511-609A)

MODEL GSA-8600



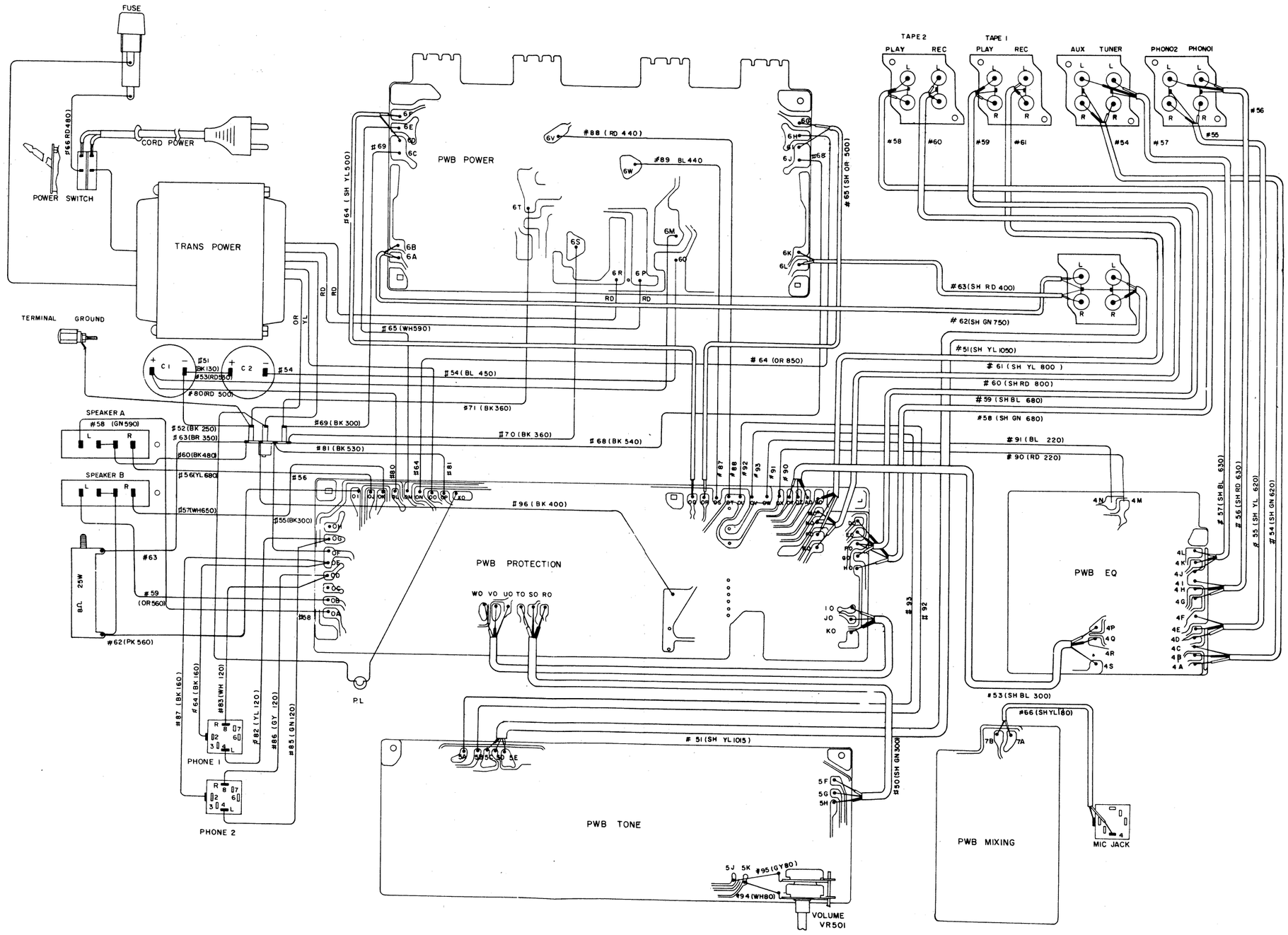
PWB AY PROTECTION (511-610A)

MODEL GSA-8600



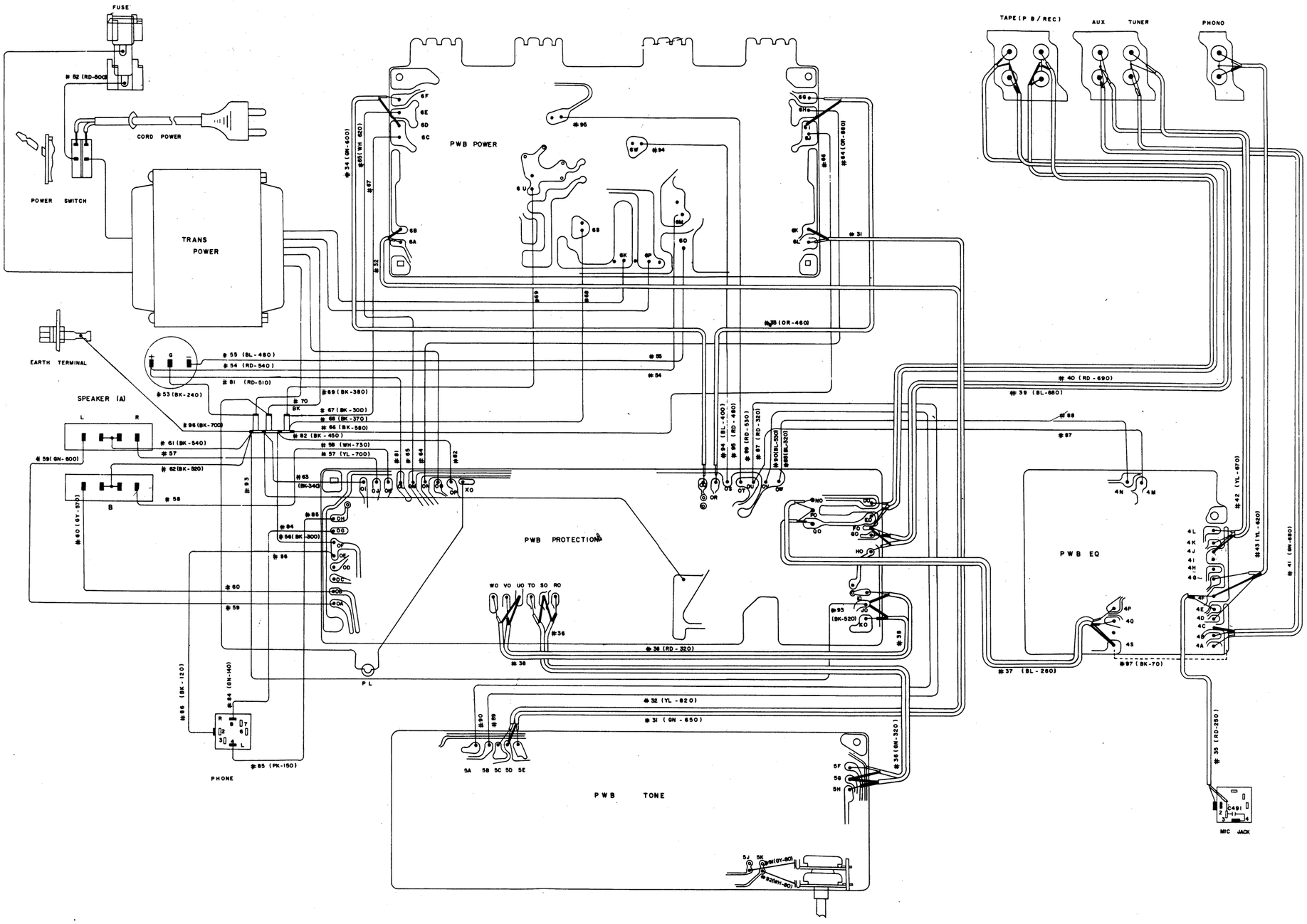
WIRING DIAGRAM

MODEL GSA-8500



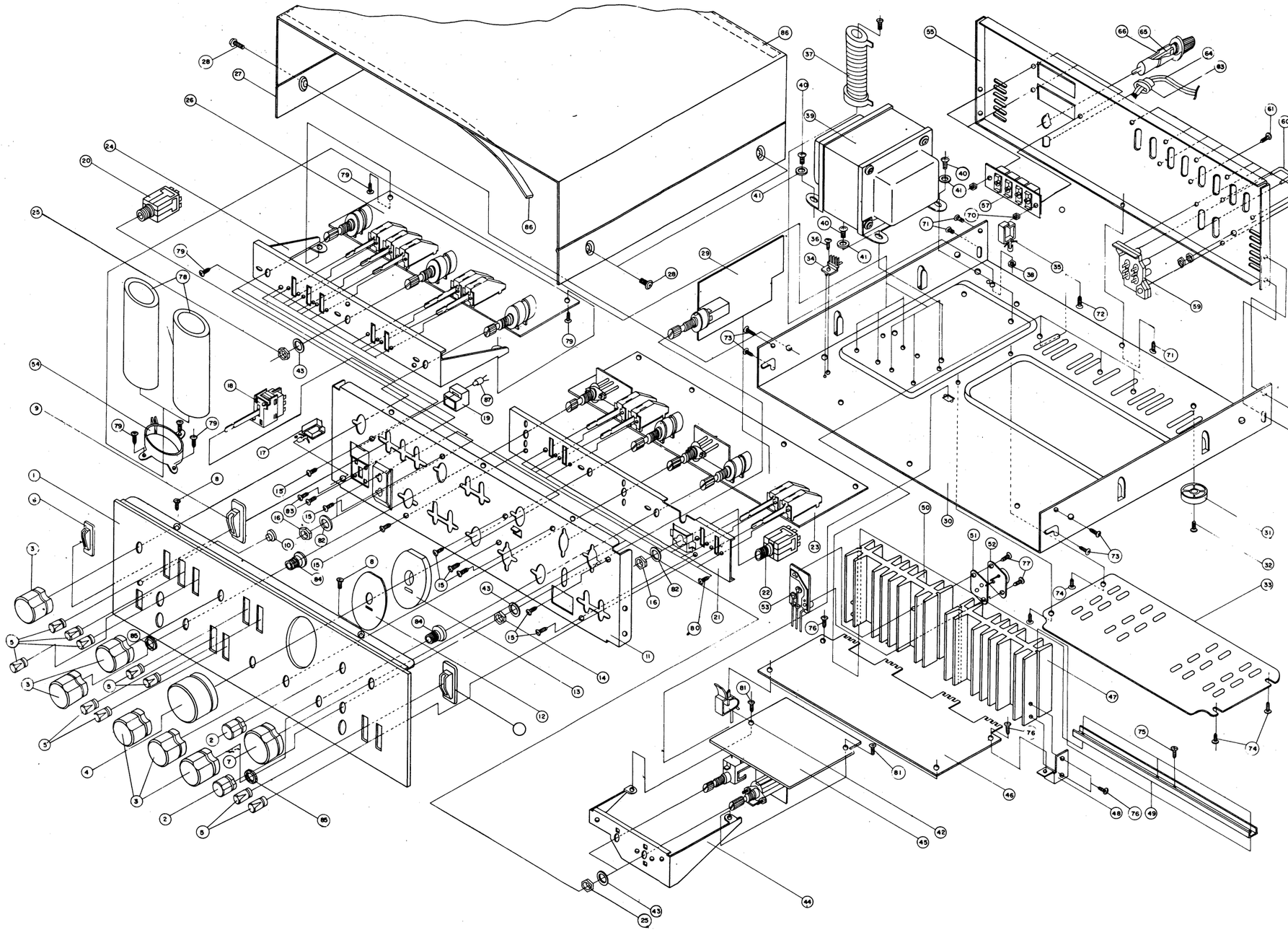
WIRING DIAGRAM

MODEL GSA-8600



EXPLODED VIEW

MODEL GSA-8500/GSA-8600



ELECTRICAL PARTS LIST

PWB AY EQ AMP

NO.	SYMBOL NO.	PART NO.	DESCRIPTION	NO.	SYMBOL NO.	PART NO.	DESCRIPTION
1	TR401, 402, 403, 404	666-008B	TRANSISTOR TOSHIBA 2SA841-BL	20	R415, 416	RD683J09	R, CARBON FILM 68K-J ¼WM
2	TR407, 408	666-008A	" 2SA841-GR	21	R411, 412	RD104K09	" 100K-K ¼WM
3	TR405, 406	666-415B	" 2SC1681-BL	22	R409, 410	RD224K09	" 220K-K ¼WM
4	TR409, 410	666-415A	" 2SC1681-GR	23	R498	RD334K09	" 330K-K ¼WM
5	S402	551-021A	SWITCH, ROTARY	24	R423, 424	RD824J09	" 820K-J ¼WM
6	S401	551-020A	"	25	C417, 418	CC080D01	C, CERAMIC CC 8PF-D SL 50V
7	R401, 402, 403, 404	RD470K09	R, CARBON FILM 47-K ¼WM	26	C407, 408, 409, 410	CC470K01	" 47PF-K SL 50V
8	R437, 438	RD560K09	" 56-K ¼WM	27	C405, 406	CC4221K01	" 220PF-K SL50V
9	R433, 434, 435, 436	RD221K09	" 220-K ¼WM	28	C425, 426	CK472Z02	" CK 0.0047MF-Z50V
10	R425, 426	RD471K09	" 470-K ¼WM	29	C403, 404	CE105F01	C, ELECTROLYTIC 1MF 50V
11	R417, 418, 419, 420	RD681J09	" 680-J ¼WM	30	C421, 422	CE335F01	C, ELECTROLYTIC 3.3MF 50V
12	R499	RD152K09	" 1.5K-K ¼WM	31	C427, 428	CE475D08	C, ELECTROLYTIC 4.7MF-25V LN BP
13	R421, 422	RD152J09	R, CARBON FILM 1.5K-J ¼WM	32	C497, 498, 499	CE476F01	C, ELECTROLYTIC 47MF 50V
14	R407,408	RD222K09	" 2.2K-K ¼WM	33	C415, 416	CE477A01	" 470MF 6.3V
15	R413, 414	RD472K09	" 4.7K-K ¼WM	34	C413, 414	CQ392J01	C, POLYESTER 0.0039MF-J 50V
16	R431, 432	RD682K09	" 6.8K-K ¼WM	35	C419, 420	CQ223M01	" 0.022MF-M 50V
17	R429, 430	RD333K09	" 33K-K ¼WM	36	C401, 402	CF474K05	C, METALIZED MYLAR 0.47MF-K 250V
18	R439, 440	RD563K09	" 56K-K ¼WM	37	C423, 424	CY271J01	C, POLYSTYROL 270PF-JR
19	R405, 406, 427, 428	RD683K09	" 68K-K ¼WM	38	C411, 412	CY112J01	" 1100PF-JR

PWB AY MIXING AMP (only MODEL GSA-8500)

NO.	SYMBOL NO.	PART NO.	DESCRIPTION	NO.	SYMBOL NO.	PART NO.	DESCRIPTION
1	TR701, 702, 703, 704 705, 706	664-615A	TRANSISTOR, TOSHIBA 2SC 1000GR	15	R723, 724	RD683K09	R, CARBON FILM 68-K K ¼WM2
2	VR701	611-070A	VR. R. VM 13E520A-UER22-50 KB	16	R727, 740	RD104K09	" 100K-K ¼WM2
3	R739	RD331K09	R, CARBON FILM 330-K ¼WM2	17	R717, 718	RD154K09	" 150K-K "
4	R701, 702, 721, 722, 726, 737	RD102K09	" 1K-K "	18	R705, 706	RD224K09	" 220K-K "
5	R742	RD152K09	" 1.5K-K "	19	R736	RD474K09	" 470K-K "
6	R709, 710, 715, 716 733, 734	RD222K09	" 2.2K-K "	20	R719, 720	RD824K09	" 820K-K "
7	R707, 708, 713, 714	RD272K09	" 2.7K-K "	21	R741	RD221K09	" 220K-K "
8	R729	RD472K09	" 4.7K-K "	22	C701, 702, 707, 708 709, 710, 712	CE105F01	C, ELECTROLYTIC 1MF 50V
9	R730, 738	RD562K09	" 5.6K-K "	23	C718, 719	CE106C09	" 10MF 16V
10	R711, 712	RD682K09	" 6.8K-K "	24	C716	CE475C01	" 4.7MF 16V
11	R728	RD153K09	" 15K-K "	25	C721	CE477D01	" 470MF 25V
12	R732	RD183K09	" 18K-K "	26	C715, 722	CC101K01	C, CERAMIC CC 100PF-K SL 50V
13	R731	RD473K09	R, CARBON FILM 47K-K ¼WM2	27	C703, 704, 705, 706	CQ222M01	C, POLYESTER 0.0022MF-M %)V
14	R703, 704, 735	RD563K09	" 56K-K "	28	C717	CQ223M01	C, POLYESTER 0.022MF-M 50V
				29	C720	CE477C01	C, ELECTROLYTIC 470MF-16V
				30	C711, 713, 714	CE224F01	C, ELECTROLYTIC 0.22MF-50V

MECHANICAL PARTS LIST

MODEL GSA-8500 / GSA-8600.

NO.	PART NO.	DESCRIPTION	NO.	PART NO.	DESCRIPTION
1	258-080B	PANEL, FRONT (GSA-8500)	46	511-610A	PWB AY, POWER AMP
	258-606B	PANEL, FRONT (GSA-8600)	47	255-041B	PLATE, HEAT SINK
2	273-208A	KNOB, 014	48	324-301A	HOLDER-A
3	273-201A	KNOB, LEVER	50	255-041A	PLATE, HEAT SINK
4	272-051A	KNOB, VOLUME 040	53	573-050A	SOCKET, AY, TR
5	273-200A	KNOB, LEVER	54	328-015A	BAND, CONDENSER SPC-1 T=1
6	384-016A	GUIDE, LEVER S/W	55	258-081B	PANEL, BACK (GSA-8500)
7	273-202A	KNOB, FUNCTION		258-081H	PANEL, BACK (GSA-8600)
8	MCC1830J	SCREW	57	561-022A	CONNECTOR, SPEAKER
9	384-018A	GUIDE, LEVER S/W ABS	58	565-003B	AC OUT LET
10	276-020A	CAP, POWER LAMP	59	573-047B	SOCKET AY, RCA
11	313-115A	CHASSIS, MAIN SPC-1 T=1	60	564-024A	PLUG, JUMP
12	256-290C	PLATE, DECORATION	61	TRQ1839J	SCREW
13	447-033A	CUSHION, PLATE	62	563-606A	TERMINAL GROUND
15	TRQ1836J	SCREW	63	324-348A	BUSHING CORD
17	324-189A	HOLDER, CORD	64	681-003D	POWER CORD
18	556-031A	SWITCH LEVER	65	585-116B	FUSE 250V 3.15A (GSA-8500)
19	341-099A	BUSHING, POWER LAMP		585-212F	FUSE 250V 1.6A (GSA-8600)
20	572-150D	JACK PHONE	66	586-107B	FUSE HOLDER (GSA-8500)
21	313-118A	CHASSIS-C SUB SPC-1 T=1		586-105A	FUSE HOLDER (GSA-8600)
22	572-150D	JACK PHONE	70	NHA1800J	NUT
23	511-311A	PWB AY PROTECTION (GSA-8500)	71	MRC1830J	SCREW
	511-611A	PWB AY PROTECTION (GSA-8600)	73	MRC1830J	SCREW
24	313-116A	CHASSIS-A SUB SPC-1 T=1	74	TRQ1830J	SCREW
26	511-309A	PWB AY TONE AMP (GSA-8500)	76	TRQ1836J	SCREW
	511-609A	PWB AY TONE AMP (GSA-8600)	77	MRC1843J	SCREW
27	213-160B	CABINET, SPC-1 T=1 BK	78	CE478F11	C, ELECTRO 4700μF 50V CE 62 TYPE
28	353-052B	SCREW, SPECIAL	79	TRQ1830J	SCREW
29	511-308A	PWB AY MIXING AMP	80	MRC1830J	"
30	313-120A	CHASSIS, BOTTOM SPC-1 T=1	81	TRQ1830J	"
31	322-106A	SUPPORTER FOOT	83	MRC1830J	"
32	MRC2241J	SCREW 4 x 12	84	341-124A	BUSHING LOCK
33	256-300A	PLATE, BOTTOM COVER	85	352-027A	NUT, SPECIAL
34	562-056A	TERMINAL, EARTHING	86	472-604B	FELT
35	324-304A	HOLDER, WIRE	87	581-016G	LAMP PILOT 12V 30MA 4.8D
36	TRQ1830J	SCREW 3 x 6			
37	614-088A	R, WIRE WOUND 8-K 25WR			
39	641-606C	TRANS, POWER (GSA-8500)			
	641-603C	TRANS, POWER (GSA-8600)			
40	MPC2239J	SCREW 4 x 10			
41	WSB2600O	WASHER, SPRING			
42	324-300A	HOLDER, POWER AMP PWB			
44	313-117A	CHASSIS-B, SUB SPC-1 T=1			
45	511-307A	PWB AY, EQ AMP (GSA-8500)			
	511-608A	PWB AY, EQ AMP (GSA-8600)			

PWB AY TONE AMP

NO.	SYMBOL NO.	PART NO.	DESCRIPTION	NO.	SYMBOL NO.	PART NO.	DESCRIPTION
1	TR501, 502, 503, 504	666-008B	TRANSISTOR TOSHIBA 2SA841-BL	24	R527, 528	RD124K09	" 120K-K "
2	TR505, 506	666-415B	TRANSISTOR TOSHIBA 2SC1681-BL	25	R557, 558	RD184K09	" 180K-K "
3	TR507, 508	666-415A	25C1681-GR	26	R507, 508	RD224K09	" 220K-K "
4		611-068A	VR, R GJ 60E-100KB x 2L (25KΩ)	27	R533, 534, 535, 536 537, 538, 539, 540	RD105K09	" 1M "
5		611-069A	VR, R GJ 70E-100KB x 2L (25KΩ)				
6		556-003A	SWITCH, LEVER	28	R545, 546, 547, 548	RD475K09	" 4.7M-K "
7		556-003B	"	29	C511, 512, 513, 514 546, 545	CC100K01	C, CERAMIC CC10PF-K SL 50V
8		556-003C	"	30	C507, 508, 509, 510	CC560K01	C, CERAMIC 56PF-K SL 50V
9	R521, 522	RD560K09	R, CARBON FILM 56-K ¼WM	31	C515, 516, 517, 518	CC101K01	" 100PF-K SL 50V
10	R543, 544	RD101K09	" 100-K "	32	C553, 554	CC221K01	" CC220PF-K SL 50V
11	R505, 506	RD221K09	" 220-K "	33	C541, 542	CQ102M01	C, POLYESTER 0.001MF-M 50V
12	R513, 514, 519, 520 529, 530, 573, 574 575, 576	RD102K09	" 1K-K "	34	C537, 538	CQ152M01	" 0.0015MF-M 50V
				35	C543, 544	CQ222M01	" 0.0022MF-M 50V
13	R571, 572	RD222K09	" 2.2K-K "	36	C525, 526, 527, 528	CQ223M01	" 0.022MF-M 50V
14	R559, 560	RD332K09	" 3.3K-K "	37	C529, 530, 531, 532	CQ683M01	" 0.068MF-M50V
15	R561, 562, 569, 570	RD472K09	" 4.7K-K "	38	C503, 504	CQ104M01	" 0.1MF-M 50V
16	R567, 568	RD562K09	R, CARBON FILM 5.6K-K ¼WM	39	C505, 506	CE224F01	C, ELECTROLYTIC 0.22MF-50V
17	R503, 504, 551, 552 553, 554, 563, 564	RD682K09	" 6.8K-K "	40	C501, 502	CY681J01	C, POLYESTROL 680PF-JR
				41	C551, 552	CY681J01	C, POLYSTROL 2.2MF 50V L.N.
18	R509, 510, 523, 524	RD822K09	" 8.2K-K "	42	C519, 520, 539, 540 547, 548	CE475F01	C, ELECTROLYTIC 4.7MF-50V
19	R515, 516	RD103K09	10K-K "				
20	R501, 502, 541, 542	RD123K09	" 12K-K "	43	C549, 550	CE107C01	" 100MF 16V
21	R531, 532, 549, 550	RD223K09	R, CARBON FILM 22K-K¼WM	44	C533, 534, 535, 536	CE107D01	" 100MF 25V
22	R525, 526	RD273K09	" 27K-K "	45	C521, 22, 23, 24	CQ273M01	C, POLYESTER 0.027MF-M50V
23	R511, 512, 517, 518 555, 556, 565, 566	RD104K09	" 100K-K "				

PWB AY POWER AMP

NO.	SYMBOL NO.	PART NO.	DESCRIPTION	NO.	SYMBOL NO.	PART NO.	DESCRIPTION
1	D605, 606	656-003A	VARISTOR STV-3H OR	25	C613, 614, 615, 616	CC150K01	" 15PF-K SL 50V
2	TR617, 618	665-806A	TRANSISTOR MOTOROLA MJ15015	26	C607, 608	CC101K01	" 100PF-K SL 50V
3	TR601, 602, 603, 604	665-808A	" LBC557	27	C619, 620, 621, 622	CC221K08	" 220PF-K SL 500V
4	Tr609, 610	662-043B	" MPSA56	28	C617, 618, 623, 624	CQ473M03	C, POLYESTER 0.047MF-M 10V
5	TR615, 616	665-807A	" MJ15016	29	C603, 604	CE224F01	C, ELECTROLYTIC 0.22MF-50V
6	TR605, 606, 607, 608	662-603B	" MPSA06	30	C605, 606	CE226E01	" 22MF 35V
7	TR613, 614	665-810B	" 2N6555	31	C611, 612	CE337B01	" 330MF 10V
8	TR611, 612	665-809B	" 2N6552	32	C601, 602	Cf684K05	C, METALIZED MYLAR 0.68MF-K 250V
9	D601, 602	652-015A	DIODE 1S1554	33	L601, 602	636-603A	COIL CHOKE, RF
10	D604, 603	656-004A	VARISTOR M8513-0	34	TR002	666-412A	TRANSISTOR TOSHIBA 2SC1626
11	R623, 624	RD680K09	R, CARBON FILM 68-K ¼WM	35	TR001	666-009A	" 2SA8160
12	R621, 622, 625, 626 653, 654	RD181K09	" 180-K ¼WP	36	D001	652-018A	Diode ESAD 01-02C
				37	D005, 006, 007, 008	652-005C	DIODE RECTIFLER 1N4003
13	R603, 604, 641, 642	RD222K09	R, CARBON FILM 2.2K-K ¼WM	38	D009, 010	654-212A	DIODE ZENER 05Z24
14	R629, 630	RD272K09	" 2.7K-K "	39	R005, 006	RN100K01	R, METAL FILM 10-K ½W¼
15	R609, 610, 611, 612 613, 614	RD332K09	" 3.3K-K "	40	R001, 002	RS181K05	R, METAL OXIDE 180K 1WP
				41	R003, 004	RD152K09	R, CARBON FILM 1.5K-K ¼WM
16	R607, 608	RD393K09	R, CARBON FILM 39K-K ¼WM	42	C007, 008	CE107E01	C, ELECTROLYTIC 100MF 35V
17	R605, 606, 617, 618	RD683K09	" 68K-K "	43	C003, 004	CE227F01	" 2200MF 50V
18	R601, 602	RD334K09	" 330K-K "	44	C001, 002	CK103P03	C, CERAMIC CK 0.01MF-P500V
19	R635, 636, 643, 644	614-005A	R, REC. WIRE WOUND 0.47K 5W "	45	C005, 006	CK103Z02	" 0.01MF-Z50V
20	R633, 634, 645, 646	RN2R2K05	R, METAL FILM 2.2 – K 1WP	46	R651, 652	RD103K03	R, CARBON FILM 10-K ½WP
21	R637, 639, 640, 638	RN100K07	" 10-K 2WP	47	D002	652-013B	DIODE ESAD 01-02N
22	VR601, 602	613-0021	VR, R. 470-B SR 19R	48	R615, 616	RD151K09	R, CARBON FILM 1.5K
23	R619, 620	RD682K03	R, CARBON FILM 6.8K-K ½WP	49	R627, 268, 631, 632	RD151K03	R, CARBON FILM 150-K ½WP
24	C609, 610	CC470K01	C, CERAMIC CC 47PF-K SL 50V				

PWB AY PROTECTION

NO.	SYMBOL NO.	PART NO.	PART NAME & DESCRIPTION		NO.	SYMBOL NO.	PART NO.	DESCRIPTION	
1	TR003, 004	665-801B	TRANSISTOR TOSHIBA	2SC9830	19	R013, 015, 017, 023	RD153K09	R, CARBON FILM	15K-K "
2	TR005, 006, 00	664-411B	"	2SC734Y	20	R007, 008	RD183K09	"	18K-K "
3	TR007	664-004B	"	2SA561Y	21	R009, 010, 025	RD273K09	"	27K-K "
4	Tr009	666-412A	"	2SC16260	22	R009, 010, 025	RD393K09	"	39K-K "
5	D011, 012, 013, 014 016, 017	652-016A	DIODE IS1587		23	R021	RD473K09	"	47K-K "
6		556-033A	SWITCH LEVER		24	R583, 584	RD104K09	"	100K-K "
7		556-033C	"		25	R028	RD184K09	"	180K-K "
8		611-067A	VR, R. GJ60E-250K MN x 2, L (25KQ)		26	R026	RS271K05	R. METAL OXIDE	270-K 1WP
9		611-033D	VR, R. GJ10R-100KB x 2		27	R027, 029	RS391K05	"	390-K 1 1WP
10		551-020B	SWITCH ROTARY		28	R647, 648, 649, 650	614-005L	R, WR220D-J 5W	
11		551-020C	"		29	C009, 010	CE224F01	C, ELECTROLYTIC	0.22MF 50V
12	S001	557-004A	RELAY	JC2A-DC24V	30	C012	CE225F01	C, ELECTROLYTIC	2.2MF 50V
13	R012, 014	RD820K09	R, CARBON FILM	82-K ¼WM	31	C013	CE107D01	"	100MF 25V
14	R024	RD101K09	"	100-K "	32	C011	CE477B01	C, ELECTROLYTIC	470MF 10V
15	R577, 578, 579, 580	RD222K09	"	2.2K-K "	33	C559, 560	CQ222M01	C, POLYESTER	0.0022MF-M 50V
16	R011, 016, 018, 020	RD272K09	"	2.7K-K "	34	C561, 562	CQ472M01	C, POLYESTER	0.004MF-M 50V
17	R022	RD682K09	R, CARBON FILM	6.8K-K ¼WM	35	C557, 558	CQ223M01	"	0.022MF-M 50V
18	R581, 582	RD123K09	"	12K-K "	36	C555, 556	CQ104M01	"	0.1MF-M 50V
					37		581-016G	LAMP PILOT	12V 30MA 4.8D